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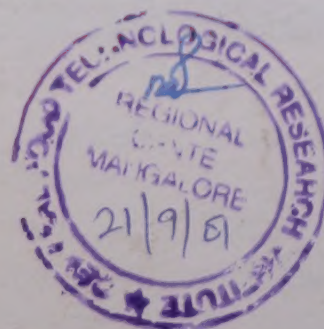
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10 Easy Ways to Enjoy More Fish and Shellfish

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the possibilities are endless for healthful eating,
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great taste to your everyday meals.
Helping ourselves to fish is helping
ourselves to health.

1. Substitute fish or shellfish for meat and poultry in your favorite casseroles, stir-fries, Mexican dishes, salads, soups, and pasta recipes.

2. Win meat-lovers over to fish by serving them "meatier" types like swordfish, fresh tuna, halibut, and shark. (These types of fish are great marinated or with barbecue sauce, then grilled).

3. Make the switch to more seafood-eating gradual, starting by substituting one fish or shellfish meal per week for a meat entree. Work your way up to several seafood meals a week.

4. "Doctor" seafood up with lemon and lime juice, herbs (like dill and basil), onions and garlic, catsup, tarter sauce (made with nonfat mayonnaise), and low-fat sauces.

5. Buy a low-fat seafood cookbook and learn several easy fish or shellfish recipes that become part of your repertoire of family favorites.

6. Cook it right: high temperature, short time, and watch it — so it's not overcooked. For example, when baking fish, do so in an oven preheated to 450° F, cooking for 10 minutes per inch of thickness or until the fish just starts to flake in the middle.

7. Save money by taking advantage of canned and frozen fish and

shellfish, as well as seafood specials at the supermarket. Less-familiar types of fish are often less expensive as well; ask for cooking ideas at the seafood counter.

8. Make lunch count by having fish or shellfish at least once or twice a week. Try tuna or salmon salad made with low-fat mayonnaise or a broiled fish sandwich.

9. Introduce your family to fish burgers or "fish loaf," made by using canned salmon, tuna, or mackerel in place of meat in your favorite meat loaf recipe. Bake in a loaf pan, or shape into burgers, then brown them in a non-stick skillet.

10. Be adventurous with seafood cooking methods. For instance, instead of traditional baking and broiling, try poaching in wine and herb-seasoned broth, grilling with barbecue sauce, and stir-frying or steaming with a potpourri of vegetables.

Buying Fish

Whether you choose fresh fish that's never been frozen, fish that's frozen onboard ship, or land-frozen fish, you won't have to fish for quality. With today's technology, you get just-caught taste and flavor. The following are guidelines to make ensure high-quality purchases:

Fresh Products

- Only buy seafood from reputable, commercial sources.
- At the supermarket, if applicable, check the "sell by" or "use by" date. If it's expired, don't buy it.
- Make seafood one of your last purchases if buying from the supermarket and always keep it cold.
- Choose glistening, flawless fish that smell sea breeze clean. A strong, fish odor generally is not acceptable.
- Whole fresh fish should have bright, clear and shiny eyes. Scales should be shiny and cling tightly to the skin. Look for bright pink or red gills.
- Choose steaks and fillets that are moist and free of drying or browning around the edges. The flesh should be firm and spring back when pressed.
- Don't buy cooked seafood products which are in direct contact with raw seafood products in the display case of your market—there could be cross-contamination.

Frozen Products

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- Fish should be free of ice crystals and freezer burn (i.e. discoloration or drying) and show no signs of thawed juices.
- Packages should be clean and tightly sealed.
- Packages that are above the frost line in a store display freezer should be avoided.
- Bottom line: cold equals quality.

Source: aboutseafood.com

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Upcoming events for seafood buyers and sellers



Europe's market place:

15,000 decision makers from the retail, wholesale, catering and processing sectors go shopping at fish international.

Fish international (14 - 17 February 2002) in Bremen, Germany, is the trade platform for the European market. With 15,000 head buyers from 70 countries. The trade fair is a guarantee for successful business with industry and the retail, food service and service sectors.

Squid & Pelagics, held for the first time in Agadir, Morocco from 21 to 23 October 2001, offers ideal access to the two most important sectors of the fast-growing Moroccan fishing industry thus bringing to the conference importers, exporters, processors and brokers from all over the world. The conference is a joint venture between Mgh (Bremen) and Agra Europe (London) Ltd.

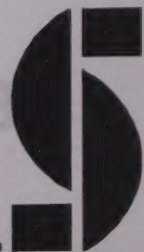
Fish International 14 - 17 February 2002:

"The Quality Exhibition" **QUALITY IN BREMEN**

Quality will be the focus of exhibitors, visitors and organizers at the Bremen fish fair. Products, information programme and service will all reflect the key role played by quality at Fish International 2002. "We'll be looking at aspects that will be decisive for the future", explains Peter Koch-Bodes, the managing director of the fair organizers Mgh (Messe - und Ausstellungsgesellschaft Hansa). "For ultimately it is quality - in all its various aspects - that is the lifeblood of today's fish industry."

And it's a concept that goes down well: about six months before the fair opens, exhibitor interest in the "Quality Exhibition" is greater than even before among foreign participants, and German exhibitors, too, are requesting larger stands.

The basis of all good fairs is the quality of its exhibitors and visitors. "And we've definitely got something to offer there", says Peter Koch-Bodes. The 483 exhibitors who attended the Bremen fair in 2000 came from 54 countries and presented a range of products that left hardly anything to be desired. "With nearly 15,000 professional visitors from 70 countries exhibitors were



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able to make contact with not only a large share of the decision makers from buying departments of Germany's retail, wholesale, catering and processing sectors, but also professionals from numerous other European countries."

88 per cent of the visitors to Fish International are responsible for their company's buying decisions, say the organizers. And the division of the fair into the four sections Trading Market, Technology, Logistics and Point of Sale makes sure that exhibitors and visitors can meet without losing any time despite the extensive range of exhibits. Exhibitors' comments taken from the exhibition questionnaire reflect this: 81 per cent of exhibitors were very satisfied and plan to be back in 2002. A lot of national pavilions from countries such as Norway, Iceland, Ireland, The Netherlands, Spain, Finland and Vietnam, the island of Sicily, and the regions of Galicia and

Boulogne-sur-Mer have already reserved stands for the coming event. Together with the Swiss Import Promotion Programme (Sippo) Eastfish will again be running its "East meets West" Trade Point where companies from Western Europe will be brought into contact with companies from the fish industries of 19 Eastern European states.

"Companies operating within the fish industry have long since recognized quality as the key to success. In the meantime, however, the definition of quality extends far beyond mere product quality", explains Koch-Bodes. Bremerhaven Frosta Ag, for example, whose exhibition area will be more than double that of the 2000 stand, will be making quality a major topic of their fair presentation. And it's not just about quality of the recipes (Slogan: "Frosta. Das schmeckt mir. [That tastes good]") and innovations (Filet di Mar) but also

about safeguarding quality through protection of fish stocks. "Our exhibits in Bremen will include carefully selected products based on the hake species hoki which bear the Msc seal for sustainable fisheries", said Frosta director Achim Schon. This is a decisive quality aspect in that it ensures long-term availability of fish.

Other exhibitors, too, will be demonstrating progress. "With a fat content of over 18 per cent our matje herring are well above the minimum German (12%) and Dutch (15%) standards", says Peter Maas, the sales manager of the Dutch matje herring processor Neptunus. At the stand of Lee Fish Europe Ag from Ruschlikon in Switzerland the focus will be on sashimi quality. "We are particularly proud to be able to offer this top standard for Japanese raw fish delicacies", says manager Daniel Christen. Sashimi grade is one of the highest demands that can



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be made on fish products worldwide. Logistics, too, contribute towards quality maintenance when importing such sensitive fish products, and this will be communicated at the fair by Nagel Airfreight and its Frankfurt Perishable Center.

CP Food Machinery from Denmark will be focusing on the latest quality standards in the technology field. "All our production lines - whether for salmon or trout - offer our customers the guarantee that they can process their products in accordance with the highest hygiene requirements", explains Knud Nielsen, the sales manager. And to make sure that quality is immediately recognizable even to the final consumer, Ketchum Manufacturing from Canada produces gill tags which carry information on the brand and origins of unprocessed fish, too.

Quality will be the major theme of the exhibition panel programme, too: product quality, quality assurance, traceability and sustainable fisheries will be the topic not only among exhibitors but also among members of the information and discussion groups. Future-oriented topics and opportunities will be on the agenda at the "Quality Conference" as well as at the meetings of professional associations of the German fish industry and at the conference of the FAO Sub-Committee on Fish Trade which will again be taking place in co-operation with the fair in 2002.

And, finally, the quality of the location itself is a further argument in favour of the Bremen fair for here, too, the organizers were awarded top marks by the exhibitors: "Very good" was the overall opinion. "Ultra-modern exhibition halls that fulfil the wishes of exhibitors and visitors alike make a major contribution to this excellent rating, as does the easy accessibility of Bremen by plane, rail or car. The city-state's

central, attractive location including Bremerhaven, the hub of the German fish industry, and its closeness to Cuxhaven and Hamburg put the finishing touches to the quality concept.

"Squid & Pelagics 2001" in Morocco

Opening by the Moroccan minister of Maritime Fishing

Well known specialists will join the conference in Agadir, Morocco from 21-23 October 2001 in the Hotel Les Dunes d'or. The forum will focus on the themes "Squid and Pelagics" - the most important sectors for the fast-growing Moroccan fishing industry. Supported by the Moroccan Ministry of Fisheries and the Federation of Chambers of Maritime Fishings (FCPM), "Squid and Pelagics" is endorsed by the Moroccan government. Minister Said Chbaatou, Ministry of Fisheries will give the opening address. The conference is a joint venture between MGH of Bremen and Agra (Europe (London) Ltd).

A panel of experts will explore key topics including a comprehensive review of resources and markets, the latest developments in fish processing and quality control and the potential for increasing consumption through new products and new market opportunities.

The Kingdom of Morocco has over 1 million square km of fishing grounds on two coastlines, and has huge potential for further development. Over the last twenty years Morocco implemented substantial investments to improve the harbor infrastructure in order to benefit from the great potential value of ground fish. There is ongoing modernization of the Ports of Laayoune, Dakhla, Nador and Tan-Tan and 700 of the fleet consisting of around 2500 vessels are being modernized or replaced. Today Morocco is one of the biggest produc-

ers of sardines in the world. Morocco offers excellent investment opportunities for the processing of value-added seafood products and foreign investment and partnerships.

In a special session on Morocco, representatives of the Ministry of Maritime Fishing and the Institute National de Recherche Halieutique will provide an overview of the national fishery industry. International experts will address the Moroccan government's plans for investment in national production, sustainable resource management and value added products. Speakers include Erwin Freitag (Migros Genossenschaftsbund, Switzerland), Yemi Oloruntuyi (Marine Stewardship Council, UK), Jesus Garcia (MD, Pescanova, Spain), Gerhard Zurlutter (Top Toque, Switzerland) and Paul Holden (Canned Food Marketing Manager, Tesco Stores UK).

Cephalopod and small pelagic resources and world markets will be the focal points of two separate sessions. Reports on squid will be given by Guillermo Jacob (President, Proyesur SA, Argentina), Janati Abdellah (Fisheries Director, Ministry of Maritime Fishing) and others. Speakers on small pelagics include Jarlath Morris (BIM Irish Sea Fisheries Board, Ireland) and Juan Vieites Baptista de Sousa (President of the Comité International de la Sardine Pilchardus, Spain). Moroccan specialists will participate in both sessions to explain national markets and industry.

The Buyer-Seller-Meeting, a special session of the conference organised by Infosamak & Infopeche, offers opportunities to gain insight into the market and meet local producers and traders.

The complete programme for "Squid & Pelagics 2001" with a list of all speakers is available at MGH,

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The world fish catch statistics during the pre and post-war era, showed a quantum jump in the world fish production after an initial low immediately after the war. In 1978 the catch from Atlantic Ocean was 25.7mt, Pacific Ocean 35.3mt and the Indian Ocean 3.6mt (FAO, 1989). The 1993 level of contribution from the three oceans were 27.7%, 63.6% and 8.7% respectively of the total fish production. In 1998 the total fish production was estimated at 86.3mt, of which, 90.7% was contributed by the marine sector and 9.3% by the inland sector (FAO, 2000). The rapid post-war increase in fish production attributed to the technical developments in fishing, construction of sophisticated fishing vessels and equipments, exploitation of newly located resources especially in tropical waters and adoption of better management measures for exploitation of available resources.

Fishing is considered to be the earliest forms of hunting and the World's oldest industry. At first the most simple and primitive form of fishing was catching the fish with the bare hands. In that period fishing developed along with hunting, as can be evidenced from the fact that the first fishing implements were also suitable for use by the hunter. From this primitive age in which man caught fish for his own food, man proceeded to make a living out of fishing. This required catching larger quantities of fish that he could market the same. It led to the invention of newer implements for fish capture like hooks, traps and finally nets to explore the possibility of catching fish from deeper waters. Simultaneous with the development of these implements man designed, the fishing vessel on which he could carry his implements and explore newer areas and catch, more varieties. Better designs of fishing gears that could effect mass capture of fish were then in-

Towards economic optimization of fisheries and energy management of capture technology



Ajith Thomas John,
Venkta Raman P.R.
and Rajeev Raghavan P.*

vented. The invention of the diesel engine revolutionised the fishing industry in that, the movement of the vessel which was at the mercy of human endurance (use of oars) and wind power, could now be self propelled and fast swimming fishes which earlier escaped the net could now be trapped.

With the advent of synthetic fibres the life span of the fishing gears improved and man was able to introduce stronger and durable nets. Though the first fishing vessels were made of wood later larger and stronger vessels were made in steel. Another material which was found suitable for the construction of fishing vessels is Aluminium. Still later newer materials like Ferro cement and Fibreglass Reinforced Plastic came into existence as boat building materials. Thus newer materials, more efficient fishing techniques and better designs of vessels and gear helped man to increase the fish production by 409% between 1938 and 1998 (Table 1) and also reduce the energy wastage in the industry to a great extent.

Table 1. World Fish Catch

Year	Qty (in '000 metric tons)
1938	21,100.00
1948	19,600.00
1958	33,300.00
1968	63,900.00
1978	70,548.60
1988	98,762.40
1998	86,300.00

The art and practice of fishing is divided into two diverse fields; Sport Fishing and Commercial Fishing While the sport fishermen strive for the catch, for entertainment, the commercial fishermen work for mass production. Any type of fishing includes both Fishing Methods as well as Fishing Gear. Fishing Methods means the manner or way in which fish may be captured; while fishing gear is the implement devel-



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oped for the purpose of capture. But often the gear alone is not sufficient to ensure capture, several ancillary instruments have to be used. The Fish-

ing Gears of the World, classified on the basis of species, behaviour, habitat, and type of gear are represented in Tables 2, 3 and 4.

Table 2. Gears for sedentary (or temporarily vulnerable) species

Shore operated gear	Hand operated gear	Diving Gear	Towed Gear
Hand capture	Large rakes	Diving outfits	Oyster dredges
Shovals	Bull rakes		Bay-scalloped dredge
Hoes or forks	Tongs		Tooted dredge (clam)
	Hooks		Jet dredge
			Sea scallop dredge
			Suction dredge
			Kelp harvester

Since fish capture cannot be carried out using fishing gear alone and also since most of the fishing gears require the aid of a fishing vessel to operate them, a brief classification of the various types of fishing vessels which assist in the fishing operation is called for. Fishing vessels can be broadly classified into two categories as shown in Table 5.

All these developments have taken shape from simple fishing methods and primitive gears. There were a number of stimulants for the development of complicated fishing techniques:

1. The desire to change from catch-

Table 3. Fishing gears for middle species, capture aided by their actions

A. Attracted by food or lure

Captured by Hook	Captured by clinging to baits	Captured by scoop net	Captured by hoop net	Captured in baited pots
Hand Line	Crab trot line	Attracted by chum	Baited nets	Very large pots
Troll gear - Salmon				Large circular pots
Troll gear - Albacore				Large conical pots
Troll gear - Regular				Small pots
Pole and Line - Live baits				
Long Lines - Vessels				
Long Line - Boats				
Flag Lines				

B. Avoiding light or seeking shelter

a. Bunches of brush	b. Earth ware pots	c. Scraps (in vegetation)
---------------------	--------------------	---------------------------

C. Attracted to light

a. Blanket net (night light)	b. Hooks (night light)	c. Dip net (torching)
------------------------------	------------------------	-----------------------

D. Migrating upstream or downstream

At fallow or rapid	In streams
Hanging baskets	Fish wheels
Dip nets	Weirs
Gaff (Detachable handle)	Fyke (Hoop) nets
	Sturgeon gear
	Gill net or Trammel net

E. Migrating at night or in turbid waters

Gill net (drifting)	Gill net (anchored)	Trammel nets
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F. Migrating alongshore

Reef net	Brush weirs	Pound nets	Floating traps
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Table 4. Gears aimed at motile species, capture unaided by their actions

A. Taken individually

Spear	Bow and Arrow	Harpoon	Rifle Club	Explosive Harpoon
-------	---------------	---------	------------	-------------------

B. Taken against shore

Stop seines	Haul seines (drag seines)
-------------	---------------------------

C. Taken in shallow water

Cast net	Herring rake	Butterfly nets	Bag nets	Circle gill nets	Filter nets
----------	--------------	----------------	----------	------------------	-------------

D. Taken on or close to the bottom

Fyke net with wings	Danish seine	Beam trawl	Bull trawl	Otter trawl
				Shrimp otter trawl
				Fish otter trawl (Flat/balloon)

E. Taken from surface schools

Lampara nets	Purse seine - two boat	Purse seine - one boat	Tuna purse seine
--------------	------------------------	------------------------	------------------

F. Taken from sub-surface schools

Mid-water trawls

ing single fish to bulk fishery.

2. The urge to explore offshore waters to catch newer varieties of fish

3. The gears which were developed and which persisted for a long time and which still do are the guarded or watched fishing gears. Then man began to think in terms of automatic unguarded gears, that is the gears which could be closed in time through remote sensed information to prevent the fish from escaping. An example of this is the "Sono-buoys" developed by the Japanese for pound nets from which the underwater noise by the fish, giving details of the catch, type and quantity is transmitted by wireless to considerable distances.

4. Yet another factor, which influenced the development of fishing techniques is the desire to aim the same gear to different fishery. Thus gill nets were used for set net fishery as well as drift net fishery. Trawl nets aimed at the pelagic, mid-water and bottom species took shape. Purse seines were modified to be aimed at big schools as

well as small shoals without the whole net being set.

Simultaneous with the developments in fishing techniques a number of management problems emerged in the industry all over the world, two of which require special mention.

a) Resource depletion through over-exploitation

b) Increased energy inefficiency

Resource Depletion

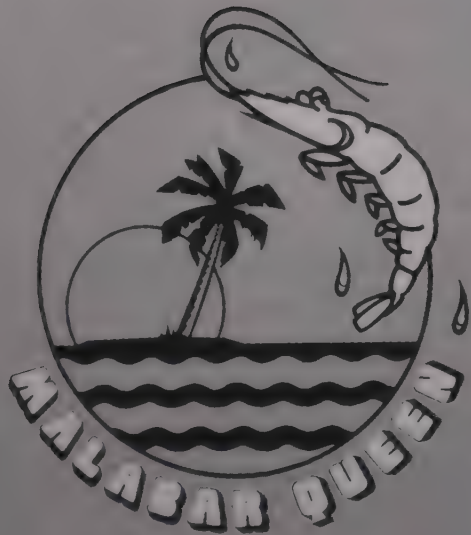
The unthinkable has come to pass. The wealth of oceans once deemed inexhaustible has proven finite and fish once dubbed as 'poor mans protein' has become resource coveted and fought over by nations. The trouble is simple, there are too many fishermen and not enough fish. This is not yet a crisis in the dire terms to which the world is accustomed - there are no long lines at fish markets with empty stalls, no sky-rocketing prices and no famine on the beach. The annual catch from the sea has peaked at around 94,625,000 mt (National Geographic, 1995) and is showing signs of decline. Several

factors worry those who rely on the sea for food and money. A fifty year boom in fishing technology has created an immensely powerful industrial fleet of around 37,000 ships crewed about a million people world wide based on freeze trawlers that can catch and process a ton or more of fish an hour. Smaller boats of traditional fisherman probably number 12 million or more yet they catch only about half the world's fish. In some poor countries a small boat and a basket of line may be the last chance for the fishermen to survive.

A common trend in most of the world fisheries is a persistent tendency toward depletion of fish stocks accompanied by high levels of capital and labour devoted to fishing, comparatively low catches and poor economic returns. As grounds close to port are depleted and catches decline the fishermen move to newer areas, but with the passage of time the productivity of the new grounds also start falling and the fishermen move to more isolated areas. This is a process which cannot

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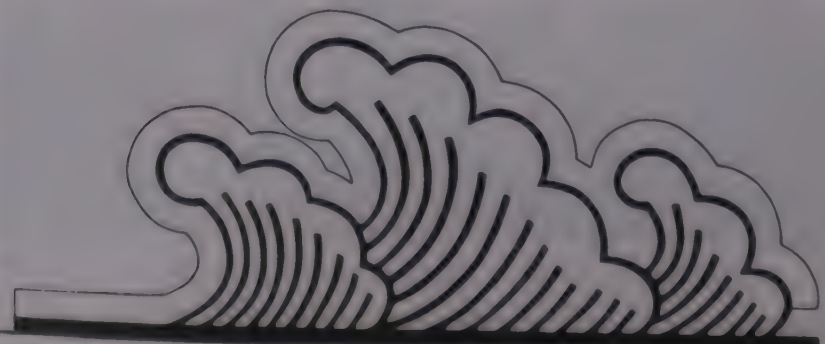


Table 5. Fishing vessels classification

A. Traditional/ Non-mechanised fishing vessels

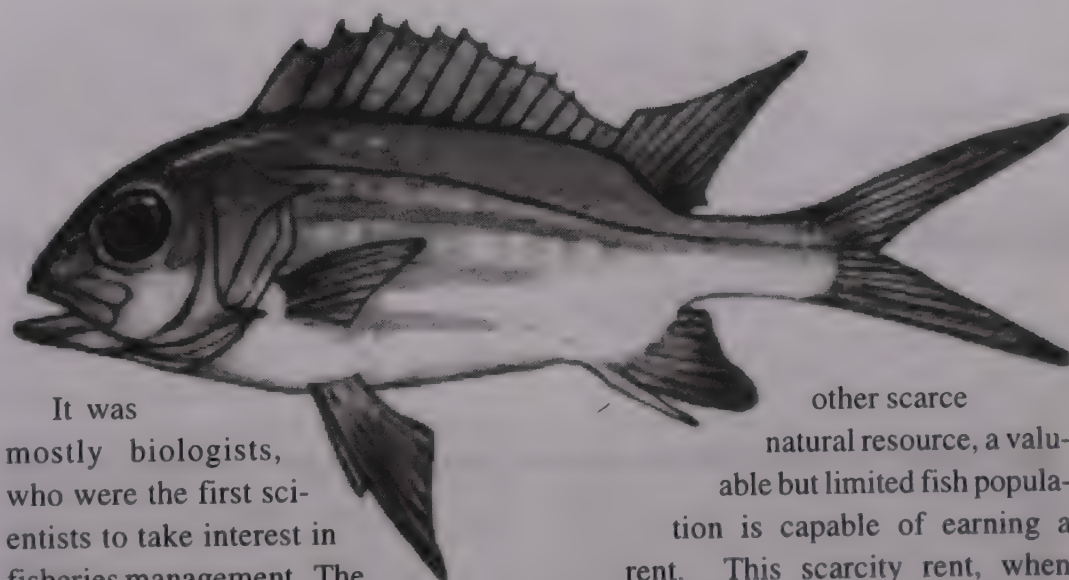
Log rafts	Dug-out canoes	Plank-built canoes	Small motorized boats
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B. Mechanised fishing vessels

Line boats	Trap boats and potters	Lift net boats	Gill netters	Purse seiners	Trawlers
Hand liners and jigging line boats					Otter trawlers
Pole and line fishing boats					Stem trawlers
Squid jigging vessels					Double/ Multi-rigged trawlers
Trollers					Beam trawlers

continue indefinitely and eventually the total catch and the overall catch per unit effort begin to fall. In this process depletion a reduction in the fish population is accompanied by a reduction in the size of the individual fish caught. A virgin fishery and a slightly worked fishery will have a significant proportion of older and larger fish. But, as the effort increases the population of larger fish gets depleted and more smaller fish begin to appear in the catches. Here further increase of effort will result in a depletion of the existing landings, showing the signs of a slow but constant death of the fishery.

Man can affect fish populations in several ways. He can harm populations not only through excessive predation but also by pollution, by obstructing migration to and from spawning area, by destroying spawning beds and by altering the habitat in other ways. Habitat alteration is especially harmful in the estuaries, which serve as areas of spawning for a large proportion of fisheries taken from the continental shelf. It thus becomes apparent that management must be concerned with maintaining or enhancing an environment suitable for all life history stages of an exploited species, including a similar concern for the organisms on which they feed.



It was mostly biologists, who were the first scientists to take interest in fisheries management. The yields from several fisheries started failing far below historical levels and this became a matter of concern during the first half of the twentieth century. The biologist's who responded, naturally thought in terms of restoring biological productivity to former levels. For this, their thoughts were strongly oriented towards a single goal: Maximisation of sustained output of fish (Maximum Sustainable Yield or MSY).

Economists did not enter the fisheries policy arena in significant numbers until the early fifties. The seminal article by Gordon (1954), focused on fishery as a "common property" resource. After that a large amount of literature has accumulated on this topic. The central argument is that, like any

other scarce natural resource, a valuable but limited fish population is capable of earning a rent. This scarcity rent, when maximised in present value terms, indicates that an economically efficient amount of labour and capital is being allocated to fishing compared to other economic activities. However, fisheries have traditionally been managed as open-access resources, meaning that a large number of potential fishermen can enter and fish as much as they want without any restrictions. Thus if existing fishermen are earning any scarcity rents, this will only serve to encourage them to expand their level of fishing to capture a larger share of the rents. Furthermore, others who have not previously participated in the fishery in question will notice that extra money can be made, there and will be enticed to enter. The result is that fishing effort will tend to expand until

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all rents disappear. Rent dissipation signals that excess capital and labour have been allocated to fishing compared to other pursuits. In other words the efficiency of the economy could be improved by reallocating labour and capital to the other sectors of the economy. Open access may have dire impact on the fishery resource itself since excess labour and capital may lead to over-exploitation in a fashion described by Hardin (1968) as the "the tragedy of the commons".

A number of management strategies have been and are being adopted by different fisheries throughout the world to counter the menace of resource depletion (Sasi Nair et al., 1999). They include.

- A scrapping policy - Licensing
- Total Allowable Catch and Quotas
- Closed areas for certain methods and boats sizes
- Closed seasons and even species ban for several years
- Fishing stops
- Minimum mesh sizes
- Development of new culture techniques

Interestingly from the economics point of view, traditional biological approaches to fishery management only tend to encourage economic inefficiency. If, for example a closed season is implemented, the fishermen will tend to allocate even more capital and labour to fishing in order to catch as large a share of the total as possible before the season closes. As all the fishermen follow this course, the fishery may become more inefficient than it was to manage. Thus the economists suggested that the biologist's goal of Maximum Sustainable Yield be replaced with the single objective of Maximum Economic Efficiency.

To achieve this economic goal, the economists devised the idea of limiting entry. Limiting entry is any form of fishery regulation that will improve eco-

nomics efficiency by restricting capital and labour in fishing compared to a regime of open access. Other approaches include taxes on catches on inputs to discourage excessive fishing and assignment of annual or permanent catch quotas to a fixed number of individual fishermen. Under the latter system each fisherman would have an economic incentive to minimise the cost of capital and labour used in catching the quota, thus helping to achieve economic efficiency.

Energy Inefficiency

Studies on the energy consumption pattern of different fishing methods have brought to light the energy inefficiencies in them and this has

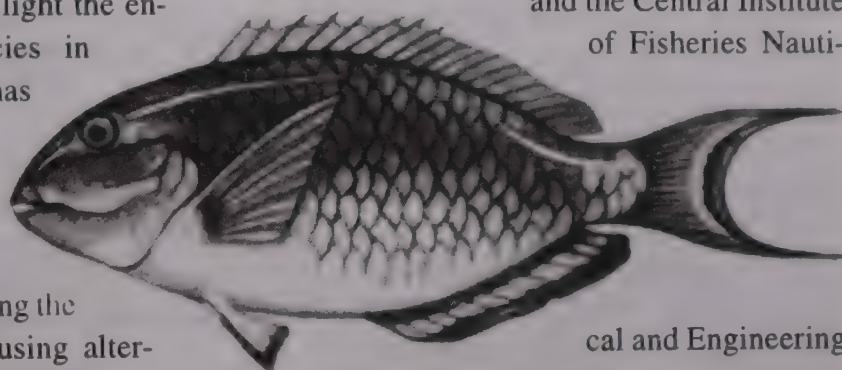
initiated a wide array of research and developmental activities including the possibilities of using alternative sources of energy in fisheries. Steps suggested to improve the energy economy of the mechanised fishing fleet include (Anders Endal, 1988).

- reduction of propeller RPM
- addition of bow and stern bulbs - increasing vessel length - improving machinery
- waste heat recovery etc. Alternative sources of energy which shows promises of application in fisheries include.
- wind energy / wave energy
- solar energy and
- alternative fuels like alcohol, biogas etc.

India with a vast coastline of 8129 km extending over 10 maritime states and also the islands of Lakshadweep and Andaman & Nicobar has an EEZ of 2.02 m sq. km and a continental shelf of 0.512 m sq. km and is endowed with one of the richest multi-species in the world. The total marine fishery resources avail-

able is estimated to be around 3.9 mmt of which the exploitable quantity is close to around 2.69 mmt.

With regard to India even though the management problem faced is mainly relating to the exploitation of untapped potential in her EEZ of 2.02 m sq. km, she is also facing the stark realities of over exploitation in her inshore waters. Energy inefficiency in the industry has become a major problem in India and a number of studies have been initiated in this direction by Central Government Organisations like the Petroleum Conservation Research Association, Central Institute of Fisheries Technology and the Central Institute of Fisheries Nauti-

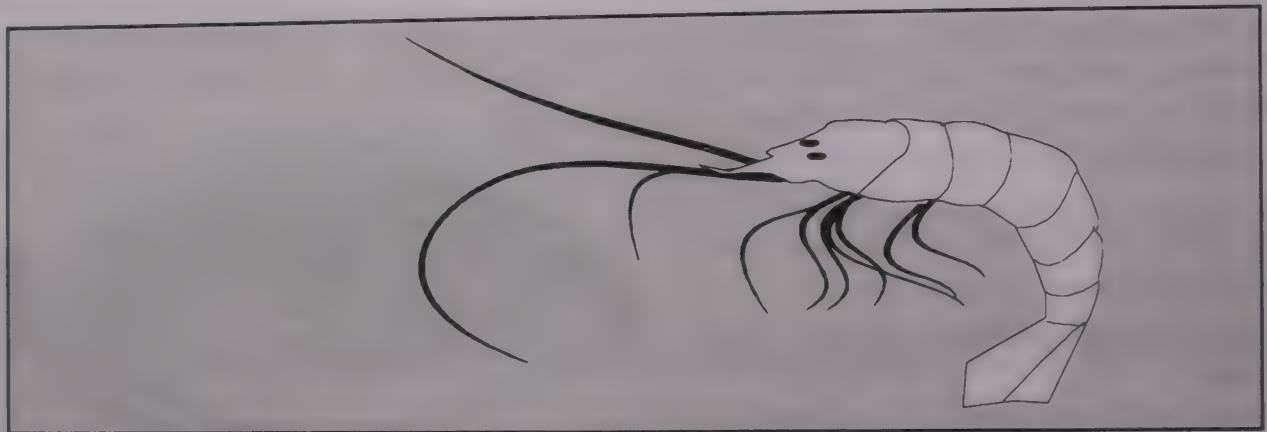


cal and Engineering Training.

Thus in this context of Economic Optimisation of Fisheries and Energy Management of Capture Technology, problems will arise as long as the industry flourish. Conservation of the resource through the age-old concept of Maximum Sustainable Yield has to be replaced by Maximum Economic Efficiency. Energy consumption patterns have to be optimised by upgrading on the existing vessels and gears and adopting new techniques and the ability to tackle the associated problems will to a great extent depend on how much we know about each species that is being caught. Developmental ideas are essential for the growth of fishing and allied industries while the management problems will continue to initiate the planners to evolve suitable solutions for the efficient functioning of the industry as a whole.

* Department of Aquaculture, St. Albert's College, Ernakulam - 18.

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Export Credit Guarantee Corporation of India Ltd. (ECGC), has introduced certain new schemes to satisfy the long-standing demands from exporters.

Export Credit Guarantee Corporation of India Ltd., which has been providing credit insurance and other related services to the exporters for more than four decades, has introduced certain new schemes to satisfy the long-standing demands from exporters.

The policies till now offered by the Corporation for insuring against the different risks in international trade are based on the whole-turnover principle. Under this principle, an exporter holding the Corporation's Shipment Comprehensive Risks Policy is required to cover all his shipments and pay premium accordingly.

Many established exporters have been demanding that they should have the freedom to select the shipments to be covered under the policy and they should not be compelled to pay premium for other shipments made to foreign buyers with whom they do not perceive any risk. In response to these demands, the Corporation has decided to introduce Specific Shipments Policies to cover one or more shipments only. Depending on the requirements of the exporters, Specific Policies will be available for covering only political risks or both political and commercial risks. Specific Policies will also be available for shipments against Letters of Credit to cover the political risks and insolvency or default of the banks opening the letters of credit. The

percentage of cover will be 80% as against normal cover of 90% and the premium rate will be higher than that of the existing Policy scheme.

While the existing whole-turnover policies may continue to be preferred option to many exporters, those who do not require such policies can now avail of this new scheme, which will come to effect from the month of September 2001 onwards.

The Corporation has introduced with immediate effect one more major flexibility in respect of trading houses, star trading houses and super star trading houses. Such exporters who may be continuing with the existing whole turnover policies will be allowed to exclude from the purview of those policies any country/group of countries or commodities or any combination of them which they choose.

The introduction of these schemes is a major milestone in the history of the Corporation as it is for the first time that the exporters are offered a choice of products. It is expected that with this more and more exporters will be able to avail of the services offered by the Corporation.

For more details kindly contact: EGGC of India Ltd, Post Box No. 1978, Kochi-682015 or Fax No.0484 374 016. Tel.0484 361437/354447/372666.

C. Thomas Mathew
Asst. General Manager & Branch
Manager.

Lithuania Fishery chapter concluded in EU membership talks

Lithuania has concluded two more chapters, in its negotiations on EU membership, taking the number of finished chapters from 17 to 29.

The two chapters were on fisheries and the freedom to provide services, the ministry said.

During a visit to Luxembourg by Foreign Minister Antanas Valionis, Lithuania and the EU also agreed to start negotiations on energy, agriculture and freedom of movement.

Valionis, who was quoted in the report, said Lithuania had been able to make up substantial ground on EU candidates that started negotiations two years earlier.

We are "on the heels" of leading candidate countries, Valionis said. Lithuania started EU membership negotiations last year and in terms of the number of closed chapters has already caught up with Poland and the Czech Republic, which entered into negotiations in 1998.

For Lithuania the fisheries talks are vital. The chance to export fishery products to the EU market without any limitations in the form of tariffs is regarded as very important by the Lithuanian seafood processing industry. The industry also needs assistance in the way of a stable banking system, credit guarantees on export and other facilities today available to the EU industry.

It has wrapped up 10 chapters since the beginning of the year. Lithuania is scheduled to conclude EU membership negotiations in 2002 and should be ready for membership by 2004.

(Source: FIS)

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Present status of Surimi in India

Yogesh. T. Patil & Ajay. T. Tandale*

Surimi is water leached, minced flesh of deboned fish always used in processed food such as fish sausages, fish cakes or kamaboko and other value added products. Surimi concept was first developed in Japan. In Japan surimi means "Minced Meat". The traditional surimi production was run on day to day basis, depending on the supply of fresh fish. Consequently surimi industry could not expand to any great extent and remained in a limited capacity. However in 1959, surimi industry took a new turn when a group of scientist headed by Nishiya and Takeda at Hokkaido fisheries laboratories discovered a technique to stabilize frozen surimi. This discovery was made from an incidental finding of a cryoprotectant which kept the surimi from freeze denaturation during frozen storage. This technique enable the Japanese manufacturer to develop the stockpile surimi. Traditionally from the surimi different type of traditional product were prepared such as Kamaboko, Chikuwa, Tempura. The technique for making Kamaboko products from minced and washed fish evolved around A.D. 1100.

Demand of surimi based product goes on increasing but the availability of surimi for that purpose was not sufficient to fulfill the demand of consumer. For this purpose Japan and other surimi product consuming countries started importing surimi from other

countries like Taiwan, Korea, Malaysia, US etc. This gave rise to the development of surimi markets. In India surimi concept was introduced in 1992. From that point, till now many surimi processing plants are working in India.

Principal species used for manufacturing surimi:

Alaska pollock, Pacific whiting, blue whiting, Atka mackerel, croaker, flying fish, jack mackerel, shark and dogfish, New Zealand hoki, threadfin bream (from Southeast Asia), etc., and others available at lower prices at local fishing ports is used for Surimi. Frozen Alaska pollock surimi is most widely used by surimi product manufactures. The quality of surimi varies depending on species and their harvesting season. Surimi product manufacturers blend surimi of different species (including produced in different season), different grade of same species, and food additives in order to maintain consistent quality (texture, taste, flavor, etc.,) of specific surimi products. Small processors for home cooking in soup dishes, grilling, etc. manufacture prepared surimi by adding other ingredients. Due to lack of any statistical or public information on this type of surimi, this report is pertinent only to raw material surimi used by surimi product manufactures.

B) Important species for surimi

1) Alaska pollock (*Theragra chalcogrammus*): Harvested in Japanese offshore, Kamchatka, Okhotsk Sea,

Alaska, and Bering Sea. Surimi manufactured with this species is most widely used for chikuwa, kamaboko, agekama, and naruto.

2) Merluccius species: Harvested in Atlantic Ocean and waters off New Zealand. This species is primarily used for chikuwa. White meat and property in-between Alaska pollock and hoki.

3) Southern whiting (*Micromessistius australis*): Harvested in southern New Zealand, Southern Argentina. Property similar to Japanese harvested Alaska pollock, used for high grade kamaboko.

4) Blue whiting (*Micromessistius poutassou*): Northeastern Atlantic.

5) Pacific whiting (*Merluccius productus*): Harvested off Pacific Northwest (off British Columbia, Canada, Washington, Oregon, and California). Quality is not a par with No.1 grade high-sea processed Alaska pollock surimi, but it is superior to on-shore processed Alaska pollock surimi.

6) Japanese fall chum salmon (*Onchorhynchus keta*): Hokkaido and Sanriku coast. Recently started using dark chum surimi and minced meat.

7) Hoki (*Macruronis novaezelandiae*): Off New Zealand and southern Australia. Primarily used for chikuwa, kanikama artificial crab legs, retainer kamaboko in casings. White meat and high elasticity (danryoku).

8) Atka mackerel (*Pleurogrammus azonus*, and *P. monopterygius*): Har-

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vested off Hokkaido (*P. azonus*) and Alaska (*P. monopterygius*). Primarily used for deep-frying to produce agekama. Weak "ashi" and less whiteness.

9) Jack mackerel (*Trachurus japonicus*, and *T. murphyi*): Harvested off Japan (*T. japonicus*) and Chile (*T. Murphyi*). This is used for chikuwa and agekama. Dark kamaboko manufacture in Shizuoka Prefecture is a local specialty.

10) Sardine (*Sardinops melanosticta*): Harvested off Japan. Used for agekama, tsumire, and chikuwa. Need further product development.

11) Yellow croaker (*Pseudosciaena polyactis*): Harvested off Japan. High elasticity (danryoku). Used for high-grade kamaboko.

12) Alfonsino (*Beryx splendens*): Harvested off Canada and eastern New Zealand. Used primarily for kamaboko and chikuwa in western Japan.

13) Threadfin bream (*Nemipterus virgatus*): Harvested off mid-Honshu, South Korea, Thailand, Indonesia and Indian coast (*N. japonicus*). Used primarily for itakama and chikuwa. Imports from Thailand increasing.

14) White croaker (*Argyrosomus argentatus*): Harvested in East China Sea. High degree of whiteness and elasticity (danryoku). Used for all surimi products.

15) Cutlassfish (*Trichifurus lepturus*, and *T. haumela*): Harvested in East China Sea and western Japan and Indian coast. Practically no "suwari." Used primarily for agekama.

16) Pike-eel (*Muraenox cinereus*): Harvested off southern Honshu, Australia, and Polynesia. Primarily used for kamaboko, chikuwa, and agekama in western Japan.

17) Lizardfish (*Saurida undosquamis*): Harvested off Japanese nearshore. Used for kamaboko and chikuwa. White meat and high degree of whiteness.

18) Blue shark (*Prionace glauca*),

yoshikirizame in Japanese: Pacific Ocean. Primarily used for hampen.

From above types of species we get the following species which are available in India

India is the largest country in the Indian Ocean and is having a long coastline of about 8129 kms with over 200 varieties of commercially important fishes and shell fishes.:

PELAGIC RESOURCES: The important pelagic fishes constituting the total potential yield of 7.42 lakh tones in the 50-200 m. depth zone are the anchovies, carangids, ribbon fishes, mackerels, sardines, tunas and sharks. Among these fishes the carangids and the ribbon fishes could be effectively utilized for surimi production in our country.

DEMERSAL RESOURCES: The demersal resources of the 50-200 m zone is estimated as 6.25 lakh tonnes of which 4.23 lakh tonnes can be caught from the 50-100 m. zone and the rest 2.02 lakh tonnes from the 100-200 m. region. A few varieties of this zone are known to produce high quality surimi and can be effectively utilized for value addition into surimi products.

The Potential source of such raw material varieties are given under:-

Study has been carried out on other species for their utilization and for their different properties for their suitability for making surimi. This study has been carried out by Department of Oceanography and Central institute of Fish Technology on the vessel Sagarsampda. The species which are studied are

Trichurus lepturus, *Epinephelus chirostigma*, *Epinephelus dicanthus*, *Atrubucco marleyi*, *Nemipterus marleyi*, *Nemipterus mesoprion* and *Priacanthus hamrur*. The surimi prepared from this species was white in color with a good flavor. The yield for *Priacanthus* was recorded 23.5% and *T. lepturus* 32.8%.

Species such as Sardine and mackerel also have ample amount of source on the Indian coast (mainly on the west coast). But the main problem with this species in producing surimi is amount of fat content and dark muscle content (20-30%).

Various methods have been developed to effectively process such fish into surimi, including washing of minced meat of this species with NaHCO_3 soln to remove fat and getting rid of dark muscle. This is done to get lesser colored surimi and to improve stability during frozen storage. Surimi prepared from horse mackerel has mostly been used for traditional low price product due to relatively weak gelation property and rather undesirable flavor and color.

Plants working in India:

In India onshore plants dominate current surimi production. The main species that are used in production of surimi is Pink perch (*Nemipterus japonicus*). Other species that are used for the surimi production are Crocker (*Johnius* sp.), Bull's eye (*Priacanthus* sp.).

In India currently following are the surimi plants which are working.

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Naik Surimi Plant	Mirkarwada, Ratnagiri, Maharashtra.
Hindustan Lever Ltd.	1. Chorwad, Gujarat
	2. Udipi, Karnataka.
	3. Vizag
	4. Taloja, Mumbai
Tim Tim Sea food	Patalganga, Raigad

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Fish species	Family	Scientific Name	Fishing Season	Max. length	Type of Gear
Trevally	Carangidae	<i>Decapterus russellii</i>	Bombay water Dec. to Feb Trivandrum and Madras October	350mm	Trawl Net
Threadfin bream	Nemipteridae	<i>Nemipterus japonicus</i>	Oct. to Dec. and Jan. to April	220mm	Trawl Net
Ribbon fish	Trichiuridae	<i>Lepturacanthus savala</i> <i>Trichiurus lepturus</i>	July to April Aug. to Oct.	750mm 1000mm	Purse Seine
		<i>Trichurus lepturus</i> is bottom leaving and pelagic. It may occur in depth of 100 meter. 75% of total catch contribute of <i>Trichurus lepturus</i>			
Mackerel	Scombridae	<i>Rastrelliger kanagurta</i>	July to April Peak season Oct. to Dec.	220mm	Purse Seine
Leather skin	Carangidae	<i>Scomberoides iysan</i>	Peak season Sept. to Jan.	1000mm	Boat Seiene
Lizard fish	Synodidae	<i>Saurida tumbil</i>		450mm	Trawl Net
		<i>Saurida tumbil</i> lives over muddy bottom of continental shelf 100 meter. Best catches from palk bay.			
Croakers	Sciaenidae Genus Johnius	<i>Johnius dussumieri</i>	Oct. to May	200mm	Trawl Net
		<i>Johnius dussumieri</i> at Bombay market is abundant along the Maharashtra coast and Gulf of Myanmar			
	Genus Otolithoides	<i>Otolithes ruber</i>	Oct. to May	750mm	Trawl Net
Sardines	Clupeidae Genus Sardinella	<i>Sardinella longiceps</i>	Aug. to Dec.	200mm	Purse Seine
Bull's Eye	Teraponidae Genus Priacanthus	<i>Priacanthus hamrur</i>		220mm	Trawl Net
Horse Mackerel	Carangids	<i>Megalaspis cordyla</i>	Sept. to Nov.	150mm	Purse Seine

Gadre Marine Export is a processor of frozen sea food. They are the first organization to produce and export frozen surimi, not only from India but from the entire Indian subcontinent comprising of India, Pakistan, Ceylon, Bangladesh and Burma. India's first 'Frozen Surimi' to S. Korea was sent by this surimi processing company.

Currently from India surimi is exported to Japan, Korea, Taiwan, Singapore, Hong Kong, China, Australia, European Union.

Raw material and Surimi Market :

In India the raw material which is used is mainly Pink Perch. It is mainly supplied from the following harbors namely Malpei, Mumbai, Goa, Ratnagiri,

Veraval. Survey in Goa showed that the boats are specially design for catching the shoals of pink perch. They are well fiberised and having fish finder.

A report on surimi marketing showed that in 1997 average wholesale prices generally varied from 320 to 375 yen/kilo in the same years, with the exceptional high prices of 410 yen/kilo in 1986, 546 yen/kilo in 1991, and 521 yen/kilo in 1992. Imports, on the other hand, increased 2.6 folds in the same years from 119, 156 MT in 1985 to 306, 251 MT in 1997. US origin surimi of Alaska pollock and Pacific whiting combined increased 10.9 percent from 122, 430 MT in 1988 to 135, 794 MT in 1997, but the import market share has de-

creased from 73.4 percent in 1988 to 44.3 percent in 1997 due to increase in surimi of Threadfin bream and Croaker from Southeast Asian countries, and Jack Mackerel surimi from Chile. Average CIF import prices of US Alaska pollock surimi varied from 230 to 257 yen/kilo in 1995-97 and those US Pacific whiting from 180 to 295 yen/kilo; croaker 292 to 364 yen/kilo; and threadfin bream 237 to 280 yen/kilo.

Thus it is indicated that the price of croaker and threadfin bream per kilo is more than that of the Alaskan pollock surimi.

Value added product:-

Value addition means any addition activity that changes the nature and

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presentation of the product thus adding value to its sale. It is one of possible approach to increase profit.

Different types of products are prepared by surimi namely Chikuwa, Tempura, Kamaboko, Imitation products. These are ready to eat products. In Japan products are used as traditional products. They are developed before 15th century. From that point different development activity has taken place in these products. Now these products are kept in Supermarkets, Sishi bars, Tempura shops, Noodles houses etc. On an average Japan imports around 16 billion us dollar products annually, which makes it as largest world importer of fishery products. The major value added products that are in demand are product by countries like Indonesia, Vietnam, Malaysia, Hong Kong, China.

Frozen Alaska pollock surimi is most widely used by surimi product manufacturers. The quality of surimi varies depending on species and their harvesting season. Surimi product manufacturers blend surimi of different species (including produced in different season), different grade of same species, and food additives in order to maintain consistent quality (texture, taste, flavor, etc.) of specific surimi products. Small processors for home cooking in soup dishes, grilling, etc. manufacture prepared surimi with other ingredients added.

In India seafood is preferred in fresh condition. Other seafood items which are consumed are Dried products, Smoked products, Fish pickle. Surimi based products are not introduced in India. Many attempts have been made to introduced this type products Blank taste of surimi based products is the main reason. Products such as Surimi cutlet, Fish ball, Prawn waffer, Fish bakarwadi, Kamaboko are made using Indian spices. Research have been made on different aspects such as Shelf life of product, Fat Protein content etc.

Future outlook:-

To sum up we can say that there is good potential for Pink perch, Crocker surimi export. Growing demand of surimi in countries like Korea, Thailand, Malaysia, Indonesia can become next market for surimi.

In India fisherman are looking after the shrimp catch because it gives them good profit. Because of over fishing shrimps stocks has started depleting year by year. But as the surimi concept has come to India these fishes has also started to give good price to fisherman. In Goa the fisherman have developed trawlers for catching of this type of fishes. Now a days this fishes are sold at Rs. 8-10/kg.

Currently Indian surimi plants mainly use the Pink perch for surimi production. Rather than going for one species processor can use other species such as Bull's eye, Croaker etc.

Sardines and Mackerel surimi is having technical problems such as fat content and red meat. If these problems are solved they will open huge opportunity for commercial production. India is having Sardine and Mackerel resources in huge amount.

Current data for the world fish catch shows that the catch of Alaskan Pollock (*Theragra chalcogramma*) decreases than that of the last years. (1998-4049223 mt and 1999-3362473 mt) the surimi producing species is decreasing. Because of this the surimi and surimi based product manufacturing companies will definitely look after the other species for surimi.

Surimi based product manufacturing in India and export by considering the current demand of the product is providing good opportunity.

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College of Fisheries, Shirgoan,
Ratnagiri.
Dr. BSKKV University, Dapoli.

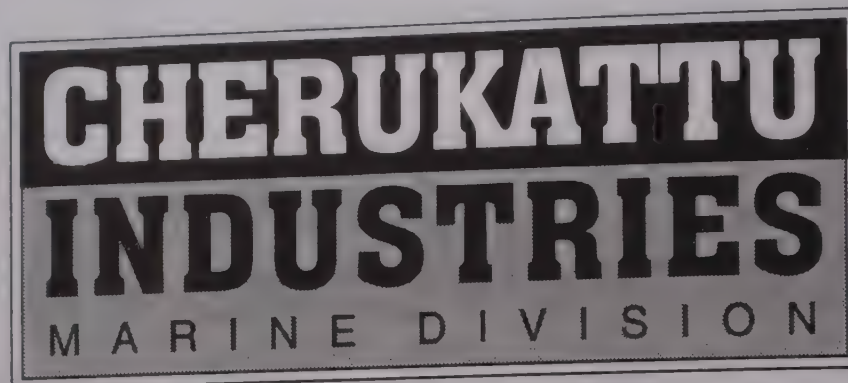
Japan FIS announces new e-commerce platform

FIS announces new e-commerce platform in partnership with major Japanese seafood companies In partnership with seven major Japanese seafood companies, Fish Information & Services (FIS) has announced the pending launch of a new electronic seafood commerce system, Fish On line, that will provide buyers and sellers of seafood with a business platform for one of the largest seafood markets in the world.

Fish On Line will allow seafood retailers and distributors immediate access to the seafood product lines of Nichirei Corporation, Mitsubishi Corporation, Chuo Gyorui Co., Ltd, Marusen Chiyoda Suisan Co. Ltd, Osaka Uoichiba Co. Ltd, and Matsuda Sangyo Co, and Nippon Suisan. These companies, with long histories of importing, processing, and distributing seafood in Japan, have combined annual sales in excess of USD 10 billion. .

Companies based outside of Japan will discover that Fish On Line offers long-awaited access to the highly complex Japanese market. As companies will be able to sell their products and more deeply penetrate the Japanese market, business transactions will be supported by eGuarantee (credit guarantee) and Logistics Planner inc., ltd. (logistics systems). Fujitsu Business Communication Systems Ltd has developed the technology behind Fish On Line, with venture financing supplied by Softbank Technology Fund.

With its tremendous demand and multi-layered distribution system, Japan is widely regarded as the most promising market for seafood e-commerce. FIS is developing similar e-commerce systems to for its operation in FIS Europe.



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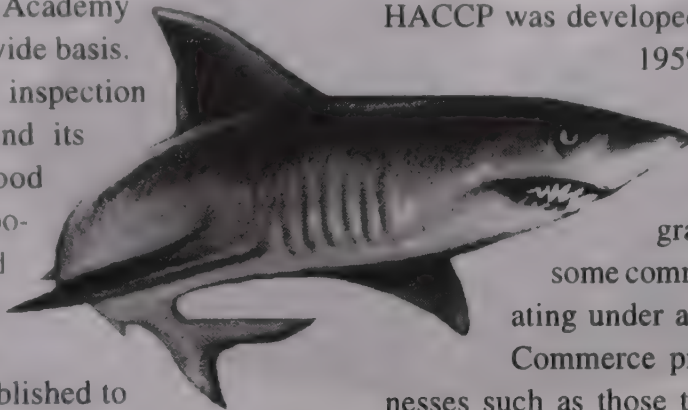
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A/P XII/555, Chandiroor, Alleppey.

New Technology for Seafood Inspection

The seafood industry is very supportive of the Food and Drug Administration's (FDA) seafood inspection program based on the principles of the Hazard Analysis Critical Control Point (HACCP, pronounced "hass-ip") system. This new program was implemented December 18, 1997, making seafood the first food to use this innovative inspection program recommended by the prestigious National Academy of Sciences on an industry-wide basis.

The benefits of a HACCP inspection program are centered around its proactive approach to food safety. HACCP identifies potential hazards which could occur in the processing and handling of food and requires that measures be established to prevent such food safety hazards from occurring. Critical control points are established to closely monitor those aspects of the process which could result in a hazard should a breakdown in the system occur. When monitoring indicates a possible problem, corrective action must be taken. This approach contrasts with traditional inspection programs which typically look at products after they have gone through the processing stage.

Records must be kept by companies on their monitoring of the critical control points. These are reviewed on



a regular basis by FDA inspectors to verify that proper controls are being maintained. These records give the inspectors a historical perspective on conditions at the facility. They can examine records going back to the most recent inspection compared to current procedures where inspectors can only verify what is going on at the time of the actual inspection.

HACCP was developed by the Pillsbury Company in 1959 for use by the NASA space program. There are private companies that have used a HACCP-based inspection program for several years, including some commercial seafood companies operating under a voluntary U.S. Department of Commerce program and canned food businesses such as those that can tuna and salmon.

Phil Spiller, Director of FDA's Office of Seafood, says, "Through HACCP, as a condition of doing business, processors demonstrate that they know the possible food safety hazards associated with their products and are operating controls every day to minimize the likelihood that those hazards will occur. In addition, government inspections become more efficient and effective."

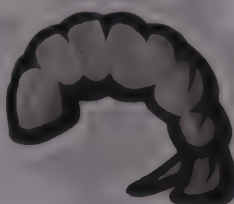
The seafood industry believes that the HACCP inspection system provides consumers with even safer and more wholesome seafood products than ever before.

Food safety tips for purchasing, handling and preparing seafood:

- Only buy seafood from reputable, commercial sources.
- Buy only well refrigerated or properly iced seafood products.
- Once purchased, refrigerate products immediately.
- For optimal freshness, use seafood products within three days.
- If you purchase live shellfish (i.e. lobsters, crabs, oysters, clams and mussels), discard any that die during storage.
- Thaw frozen seafood in the refrigerator or under cold running water, not at room temperature. Marinate seafood in the refrigerator.
- Prevent cooked seafood products from coming in contact with raw product as well as the cutting boards and utensils used to prepare them.
- Individuals with weakened immune systems and liver ailments should only enjoy seafood in its many delicious cooked forms. Individuals with these health concerns should avoid raw and undercooked seafood.
- Keep prepared seafood's such as salads refrigerated before serving.

Those who fish recreationally should follow state and local government advisories about fish areas and consumption of product from certain areas.

Source: aboutseafood.com



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Service Tax imposed on more Services

Office of the Commissioner of Central Excise and Customs has issued the notification regarding the imposing of service tax on 15 new services from 16.7.2001.

Extracts of the Notification.

Scientific and technical consultancy service

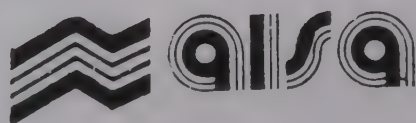
Section 65(60) defines "scientific and technical consultancy" as any advice. Consultancy, or scientific or technical assistance, rendered in any manner, by a scientist or a technocrat, or any science or technology institution or organisation, to a client, in one or more discipline of science or technology. The taxable service has been defined in clause 72 (za) of section 65 as "any service provided, to a client, by a scientist or a technocrat, or any science and technology institution or organisation, in relation to scientific or technical consultancy".

The taxable service should be understood in the context of its commonly understood meaning and scope. For instance, it would cover consultation, advice or technical assistance provided by a scientist or a technocrat or a science or technology institution on any issue relating to any branch of science and technology. Such consultation may be in the nature of an expert opinion/advice in regard to scientific or technical feasibility or any other scientific or technical aspect of a project, process or design, recommending an apt technology, suggestion for improvement in existing technology or process, providing consultation on any technical problem or about new technology, etc. Some of the specific issues raised and clarification; thereon are given below.

Points for clarification :

<i>Point raised for clarification</i>	<i>Clarification</i>
Whether services rendered by doctors, medical colleges, nursing homes, hospitals, diagnostic and pathological labs, etc. would come under the purview of the proposed levy.	In common parlance, these categories of service providers are not known as scientists or technocrats or science or technology institutions or organisations. They will not be covered under service tax.
Whether public funded research institutions like CSIR, ICAR, DRDO, IITs and IISc., Regional Engineering Colleges etc, which are exempt from payment of income tax are covered under the service tax.	Yes. Service tax is liable to be paid when any scientific or technical consultancy service is rendered whether by public funded institutions or by private agencies.
Whether testing services will be covered under the proposal levy?	Mere testing will not attract service tax. However, in case testing is an integral part of the consultancy, then such activity is part and parcel of the taxable service and no abatement of any kind admissible.
Many public funded research institutions receive grants or aids from the Government for conducting research/project work. Whether such activities would be covered under the levy?	In the facts of this case, no service is rendered to any one. Hence the question of payment of service tax does not arise. However, if they render service to anyone on payment basis, service tax will be payable on such services.
Whether the service tax will be leviable on consultancy provided to government departments, public sector undertakings?	If scientific or technical consultancy is provided to government department for which consultation fee are received, the service tax would be applicable.

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Alsa Marine has state of the art cooking and freezing plants at Calcutta and Vizag and the plant at Chennai will be ready in six months. Leased plants at Bhubaneswar, Chennai and Cochin have also been upgraded. Alsa is on a list of USFDA and two of its factories are approved for EEC.

Equipped with state of the art facilities and a

trained workforce, Alsa is poised to rapidly forge ahead into the future through a forceful expansion cum modernisation drive, at home and abroad. Alsa is recognised as a Trading House and is geared to attain Star Trading House status in the coming years.

Alsa Marine manages a 120 acre farm in Nellore, and is also an active participant in satellite farming. With a tie up with Biofeed Singapore, Alsa has brought in quality feed to the small and big farmers. Alsa Marine provides technology for different levels of culture activities; from the semi-intensive to extensive. Alsa Marine assists farmers in setting up of farms, right from selection of site to commercial operations and provides farm management assistance.

All of which will see Alsa netting more profits and precious foreign exchange from the seas.



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BRINGING ASHORE THE PROSPERITY OF THE SEAS.

Insurance auxiliary service:

As per section 65(31), "Insurance auxiliary service" means any service provided by an actuary, an intermediary or insurance intermediary or an insurance agent in relation to general insurance business and includes risk assessment, claim settlement, survey and loss assessment. As per section 65(72) (21), the taxable service is any service provided to a policy holder or insurer by an actuary or intermediary or insurance intermediary or insurance agent, in relation to insurance auxiliary service.

Services covered in this category are the services provided by the insurance agents to the insurance company

such as services of investigating claims, determining the amount of loss or damages covered by the insurance policies and negotiating settlements, services of examining claims which have been investigated and authorization of payments and damage assessment services, administration of insurance including salvage administration and insurance consultancy services. It may be emphasized that only such services are taxable which are in relation to general insurance business such as motor vehicle insurance, insurance of buildings and other properties, marine insurance, fire insurance and other miscellaneous insurance. Services provided in relation to life insurance are

holder. Service tax is liable to be paid by the insurance auxiliary service provider except in case of insurance agents. Insurance agents normally do not charge the policy holder. However, the insurance company pays the agent a commission (usually as a percentage of the insurance premium) on a periodic basis. In the case of an insurance agent, it has been provided in the Service Tax Rules that the person liable to pay service tax will be the concerned insurance company who has appointed the agent. Notification no.5/2001-ST refers.

The service tax is applicable to services provided on or after 16th July 2001 and any payment made for the services provided prior to this date will not be liable to tax even though payment is made on or after the 16th July 2001.

A point has been raised that the service provider, namely, an actuary, an intermediary or insurance intermediary or an insurance agent is reimbursed certain out of pocket expenses such as travelling expenses, boarding and lodging charges on actual basis. These expenses are reimbursed in addition to the prescribed fee. Whether such reimbursements will be included in the taxable value? In this regard it is clarified that the amount billed to the client on account of out of pocket expenses, which are reimbursable on actual basis, such as travelling, boarding and lodging expenses, the same are not subject to service tax. In this respect, the assessee may be required to provide documentary evidence substantiating his claim.

Another point raised is to whether in cases where the bills raised by the service provider are revised, the service tax is payable on the billed amount or on the actual amount received. In this regard it is clarified that Rule 6 of the Service Tax Rules, 1994, provides for payment of service tax only on the amount received and not on the amount



in relation to marketing of insurance policies. They also provide service to policy holder by providing information/advice on the types of insurance policies, processing of documentation, remitting of insurance premium, etc. Actuarial services are provided by the actuaries to the insurance companies. They cover diverse fields such as calculating insurance risks and premia, insurance claims adjustment services

not taxable.

The service providers are insurance agents, insurance surveyors and loss adjusters, actuaries and insurance consultants. In the case of insurance surveyors and loss adjusters, actuaries and insurance consultants, the service is provided mainly to the insurance companies (insurer) while in the case of insurance agents, the service is provided to both the insurer and the policy



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raised for the services provided. As such service tax is payable on the amount actually received.

Banking and other financial services;

As per section 65(10) of the Finance Act, 1994, "banking and financial services" means the following services provided by a banking company or a financial institution including a non banking financial company, namely:-

- (i) financial leasing services including equipment leasing and hire-purchase by a body corporate;
- (ii) credit card services;
- (iii) merchant banking services;
- (iv) securities and foreign exchange (forex) broking;
- (v) asset management including portfolio management, all forms of fund management, pension fund management, custodial depository and trust services, but does not include cash management;
- (vi) advisory and other auxiliary financial services including investment and portfolio research and advice, advice on mergers and acquisition and advice on corporate restructuring and strategy; and
- (vii) provision and transfer of information and data processing.

The taxable service, as per section 65(72) (zm) means any service provided, to a customer, by a banking company or a financial institution including a non banking financial company, in relation to banking and other financial services.

The definitions of 'banking', 'banking company', 'financial institution' and 'non-banking financial company' as per the Banking Regulation Act, 1949 and Reserve Bank of India Act, 1934 are given below:-

"banking" means the accepting, for the purpose of lending or investment, of deposits of money from the public, repayable on demand or otherwise, and

withdrawable by cheque, draft, order or otherwise.

"banking company" means any company which transacts the business of banking in India.

"financial institution" means any non-banking institution which carries on as its business or part of its business any of the following activities, namely-

- (i) the financing, whether by way of making loans or advances or otherwise, of any activity other than its own;
- (ii) the acquisition of shares, stock, bonds, debentures or securities issued by a government or local authority or other marketable securities of like nature;
- (iii) letting or delivering of any goods to a hirer under a hire-purchase agreement as defined in clause (c) of section 2 of the Hire Purchase Act, 1972 (26 of 1972)
- (iv) the carrying of any class of insurance business;
- (v) managing, conducting or supervising, as foreman, agent or in any other capacity, of chits or kuries as defined in any law which is for the time being in force in any State, or any business, which is similar thereto;
- (vi) collecting, for any purpose or under any scheme or arrangement by whatever name called, monies in lumpsum or otherwise, by way of subscription or by sale of units, or other instruments or in any other manner and awarding prizes or gifts whether in cash or kind, or disbursing monies in any other way, to persons from whom monies are collected or to any other person, but does not include any institution, which carries on as its principal business-
 - (a) agricultural operations; or
 - (aa) industrial activity; or
 - (b) purchase or sale of any goods

(other than securities) or providing of any service, or portion of the income of the institution is derived from the financing of purchases, construction or sales of immovable property by other persons.

- (i) a financial institution which is a company;
- (ii) a non banking institution which is a company and which has as its principal business the receiving of deposits, under any scheme or arrangement or in any other manner, or lending in any manner;
- (iii) such other non-banking institution or class of such institutions, as the Bank may, with the previous approval of the Central Government and by notification in the Official Gazette, specify.

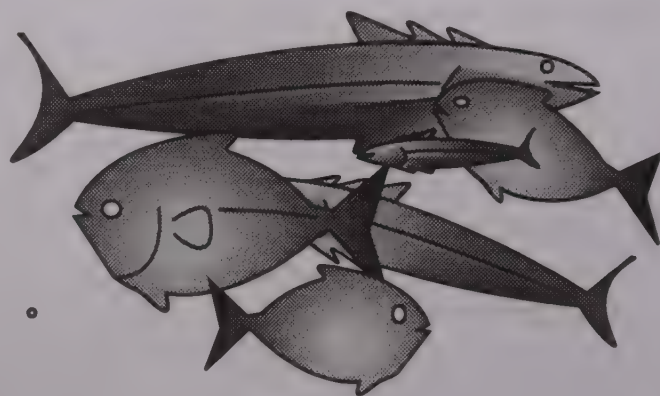
Financial services covered under the tax net are specifically mentioned in the definition itself.

Financial leasing including equipment leasing and hire purchase:

In case of financial leasing including equipment leasing and hire-purchase, the service is taxable only if it is rendered by a body corporate. The term 'body corporate' has the meaning assigned to it in clause (7) of section 2 of the Companies Act, 1956. Briefly, body corporate means a private limited, public limited company or a Government company. Such companies should be either a banking company or a financial institution or non-banking financial company to come under the tax net. In other words individuals, proprietorship or partnership firms will not come under the tax net. The leasing or hire-purchase may be of motor vehicles, machinery and equipment or other goods.

In the case of leasing or hire purchase, it is understood that the general business practice is as follows: The service provider enters into a leasing or hire-purchase agreement with the les-

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see or hire-purchaser. At the time of entering into the agreement, they collect a charge called lease management fee or processing fee or documentation charges or by any other name, which is usually a percentage of the transaction value. The lease rental or hire purchase amount is recovered in equated monthly installments (EMI) over the period of lease or hire-purchase as indicated in the agreement through post dated cheques and no separate bills are raised for the monthly recovery. Every agreement bears a unique number.

The EMIs consist of recovery of principal amount (towards the original cost of the equipment) and finance/interest charges. The allocation between the principal and the finance/interest charges are known to and agreed upon by both the parties. The customer repayment schedule contains the details of the EMIs with the break up for the principal and the interest. In respect of leasing and hire-purchase, the amount recovered as principal is not the consideration for services rendered but is credited to the capital account of the lessor/hire purchase service provider. The interest/finance charges is the revenue or income and is credited to the revenue account. Such interest or finance charges together with the lease management fee/processing fee/documentation charges is the consideration for the services rendered and, therefore, they constitute the value of taxable service and service tax is payable on this value. Accordingly it is clarified that service tax in the case of financial leasing including equipment leasing and hire purchase will be leviable only on the lease management fee/processing fee/documentation charges (recovered at the time of entering into the agreement) and on the finance/interest charges (recovered in equated monthly installments) and not on the principal amount.

A question has been raised whether

lease or hire-purchase agreements entered into prior to the imposition of levy (prior to 16-7-2001) would be leviable to service tax. In this regard, it is clarified that such agreements entered into prior to 16-7-2001 will not be liable to service tax, provided the property/goods has also been received by the lessee prior to 16.7.2001.

Credit card services

This is a service where the customer is provided with credit facility for purchase of goods and services in shops, testaurants, hotels, railway bookings, petrol pumps, utility bill payments, etc. Cash advances are also permitted upto specified limits in most of the cases. This service is provided by nationalized banks, multi-national banks and private banks.

For rendering the service, the service provider collects joining fee, additional card fee, annual fee, replacement card fee, cash advance fee, charge slip/statement retrieval fee, surcharge/service charges on railway fare, fuel charges, and utility bill payments, charges on over limit accounts and late payment fee, interest on delayed payment, interest on revolving credit, etc. The fees may vary based on the type of card and from bank to bank. All these charges, including interest charges are made for the services rendered. Hence they all form part of the value of the taxable service in this case.

The service tax is leviable only in respect of transactions which are done using a credit card on or after 16th July 2001. Any amount paid by a customer to credit card service provider in respect of transaction done prior to 16th July, 2001 is not liable to service tax even though such amount is paid on or after the 16th July, 2001.

Merchant banking services

Banks and Financial institutions including NBFCs providing merchant

banking services are governed by the SEBI (Merchant Bankers) Rules, 1992 and SEBI (Merchant Bankers) Regulations, 1992. As per these rules and regulations, merchant banking service is any service provided in relation to issue management either by making arrangements regarding selling, buying or subscribing securities as manager, consultant, advisor or rendering corporate advisory service in relation to such issue management. This, inter-alia, consists of preparation of prospectus and other information relating to the issue, determining financial structure, tie up of financiers and final allotment and refund of the subscription for debt/equity issue management and acting as advisor, consultant, co-manager, underwriter and portfolio manager. In addition, merchant banking services also include advisory services on corporate restructuring, debt or equity restructuring, loan restructuring, etc. The fee charged by the merchant banker for rendering these services will be the taxable value in respect of this service.

Asset management including portfolio management and all forms of fund management, pension fund management, custodial depository and trust services.

Asset management and portfolio managers are also governed by the SEBI (Portfolio Managers) Rules, 1993 and SEBI (Portfolio Managers) Regulations, 1993. As per these rules and regulations, the "Portfolio Manager" means any person who pursuant to a contract or arrangement with a client, advises or directs or undertakes on behalf of the client (whether as discretionary manager or otherwise) the management or the administration of portfolio of securities or the funds of the client, as the case may be. They enter in agreement with the client and charge an agreed fee for providing the service. The tax will be leviable on the fee charged for providing these services.

Similarly in the case of other types of fund management such as pension fund management, service tax will be leviable on the fee charged for providing the service.

With respect to mutual funds, a question has been raised whether the asset management company is liable to pay service tax, as it may not fall in the category of NBFC. It is clarified that such asset management companies are not NBFC. Hence they will not come under the purview of service tax.

Custodial depository services means safe keeping of securities of a client and providing services incidental thereto, and includes-

- (a) maintaining accounts of securities of a client;
- (b) collecting the benefit of rights accruing to the client in respect of the securities;
- (c) keeping the client informed of the action taken or to be taken by the issuer of securities, having a bearing on the benefits or rights accruing to the client; and
- (d) maintaining & reconciling records of the services referred to in sub-clause (a) to (c).

Taxable value is the fee charged for providing custodial services. However, service tax will not be leviable on NSDL or CSDL fees paid to the depositories; and recovered from the customers on actuals basis.

Other auxiliary financial services

Some examples of other auxiliary financial services are investment and portfolio research and advice, advice given on mergers and acquisition, advice on corporate restructuring and strategy, market analysis and intelligence.

In the case of banks and financial institutions including NBFCs, while

some services may be done in a centralised way (that is centralised billing and accounting) either at the head office or regional office, in respect of other services such as financial leasing including equipment leasing, specified branches may be providing the service with separate billing and accounting. In respect of a taxable service, where the billing and accounting is centralised in an office of the bank, only such office needs to be registered and made liable to pay service tax in respect of such service. Where the billing and accounting is not centralised and is undertaken by different branches of a bank or a financial institution including NBFCs, each such branch office will have to be registered and made responsible for payment of service tax and compliance with other procedural formalities.

Port Services:

As per the section 65(51), the "port services" means any service rendered by a port or any person authorized by the port, the port, in any manner, in relation to a vessel or goods. As per section 65(72)(zn), taxable service is any service provided to any person by a port or any person authorized by the port, in relation to port services, in any manner.

Port services generally consist of port and dock services (these are for services rendered in relation to vessels), cargo handling and storage services, railway haulage services, and container handling services (these are for services rendered in relation to goods). The Dock Labour Board of the Port provides service of labour for handling of goods. The port or the person authorized by the port rendering these services is the service provider.

Some of the specific charges for the services rendered in respect of port

services are as follows.

- (i) Port and dock charges consisting of berthing and mooring charges, port dues, pilotage and towage, water supply charges, salvage and diver charges, anchorage fee;
- (ii) Cargo handling and storage charges consisting of wharfage for general cargo, ware-housing charges, carnage charges, ore handling charges, wharfage on petroleum products, weightment charges for lorries, traffic appliance charges, weightment charges for goods;
- (iii) Railway haulage charges for rail-borne goods, local haulage and storage;
- (iv) Container handling charges consisting of import, export and trans-shipment wharfage on containers, equipment charges for handling of containers, container storage charges;
- (v) Labour charges.

All these charges form part of taxable value of port services. Demurrage charges are recovered by port authority as a rental for storage of goods. The fact that these charges apply only if the goods overstay a prescribed free period, does not detract from their being in the nature of a charge for providing a service in relation to goods. Accordingly they would form part of taxable value. The Dock Labour Board is liable to pay service tax on the labour charges recovered by them. However, estate rentals of the port, which is charged for renting of accommodation provided to outsiders and port users, lease rental for land, etc. will not be liable to service tax as these are not services rendered in relation to goods or vessels. For any other charge not mentioned above, the Commissioner may decide the inclusion/exclusion in the value of taxable service on merits.

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